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Multiple~Use Potentialities of the Farm Woodlot

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The Value of Forests Was Recognized in Eary Soil Conservation Programs

During the past twenty years there has been a growing appreciation of the need for conserving the forest resources of southwestern Wisconsin. As a result, many tracts of woodlands which formerly were given little protection, and no management, now are dedicated to sustained timber production. Actually, the growing of forest crops is only one of the objectives of the present-day program, and other accompanying benefits are sufficiently important to justify the claim that the multiple use of timber lands is an accomplished fact on many farms in this region. Thus, the value of forest cover and associated vegetation in reducing runoff, erosion, and the amount of top soil lost through excessive blowing was recognized from the start. In the decade from 1930 to 1940, thousands of acres of woodlands on farms throughout southern Wisconsin and southern Minnesota were fenced and protected from livestock and fire. Less frequently the stands were thinned or given other types of silvicultural treatment. The Civilian Conservation Corps and other public works agencies provided impetus for this forestry program.

Probably the most noteworthy accomplishments of these woodland activities of the "thirties" were educational rather than technical. As a result of them, hundreds of farmers began, for the first time, to think of their forests as an integrated part of the farm business, rather than as isolated blocks of timber which contributed little or nothing to the yearly family income.

There is Increasing Interest in the Well-Managed Farm Woodlot

What ultimate effect this changed viewpoint may have on timber production and water and soil conservation remains to be seen. There are many indications, though, that the basic idea of integrating the use of cropland and pasture with forestry practices really has taken root in the dairy farming regions of southern Wisconsin and southern Minnesota. Research, demonstrations, and the increased availability of publicly-financed technical service

all undoubtedly have helped to convince farmers that their woodlots deserve to be protected and managed properly.

Take the case of research for example. Watershed investigations carried on at the Upper Mississippi Valley Soil Conservation Experiment Station in La Crosse County, Wisconsin showed that a 11.5-acre ungrazed forest on slopes ranging up to fifty percent, yielded approximately 2.1 percent as much run-off as a grazed woodlot and 6.8 percent as much as a well-vegetated, open blue grass pasture[2]. Even more striking is the fact that in the 12-year period since 1938, no measureable run-off or soil loss has occurred from the protected timbered area.

Grazing studies[3] made in Richland and Sauk Counties, Wisconsin, also provided convincing evidence that insufficient forage is produced, even on sparsely-wooded slopes, to justify the further destruction of forest value by continued grazing. Average annual forage consumption[4] for the woods pasture was 276 pounds of dry matter per acre as compared to 1453 pounds for open, unimproved blue grass lands and 3210 pounds for open, renovated grazing areas. Thus, it took 5.3 acres of woods pasture to produce as much feed as an acre of untreated pasture and 11.6 acres to produce as much as one acre of improved pasture. If these forage-consumption investigations had been carried on under stands of good density where the ground was fully-shaded there undoubtedly would have been even less than 276 pounds of dry matter per acre eaten by livestock. Nor should the erosion-hazard angle of grazing steep, partially wooded slopes be overlooked.

The conservation of Water and soil by protected, well-managed woodlands represents an undisputed tangible value. The same thing may be said of the reduction in flood damage to agricultural and urban properties, the improved fish and wildlife conditions, and the enhanced recreational opportunities which are so evident on the occasional watershed which has been organized with the objective of using each parcel of farm land for the purpose for which it is best suited. A classic example of such an area is the 6,000-acre Gilmore Creek drainage near Winona, Minnesota. Farmers on that unit were so interested in adopting erosion-control and water-conservation measures that eventually more than ninety percent participation resulted.

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[2] Lake States Forest Experiment Station, University Farm, St. Paul, Minnesota. 1938. Technical Notes, No. 138.

[3] H. L. Ahlgren, M. L. Wall, R. J. Mushenhern, and J. M. Sund. 1946. Yields of Forage from Woodland Pastures on Sloping Lands in Southern Wisconsin. Journal of Forestry, 44:709-711.

[4] The amount of animal food actually utilized by dairy cows, instead of total production, was measured. This was accomplished by a sampling procedure involving the use of 234 ¼ mil-acre wire cages.

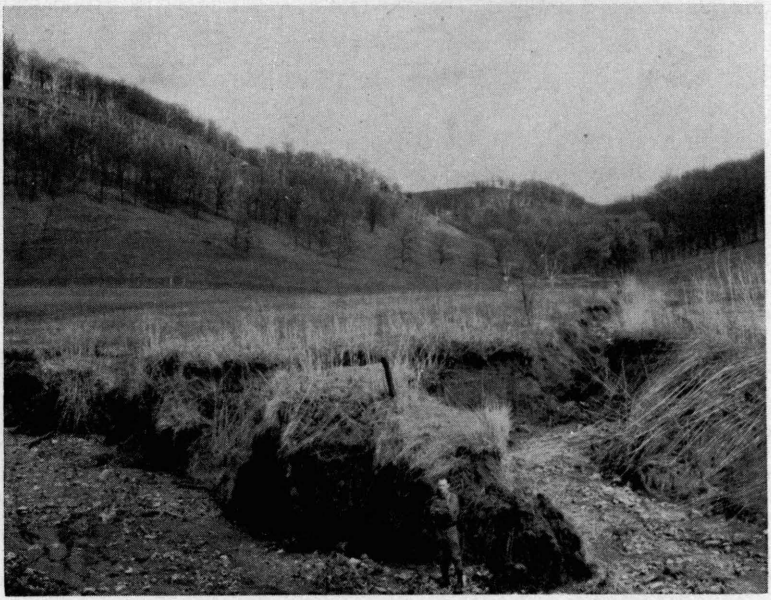
Most Farmers Feel that Forestry Must be Justified on Economic Grounds

While it is true that more and more farmers have a growing appreciation of the value of protected forests in saving water and soil, these benefits, in themselves, do not have sufficient popular appeal to stimulate a real forestry program. Most land owners feel, instead, that unless their woodlands contribute to the general farm income there is little practical justification in spending time and money on them.

This gully developed from run-off which originated on a heavily-grazed, half-timbered, half-open slope. No cropland was involved. La Crosse County, Wisconsin.

In recognition of this economic consideration, a study[5] was made several years ago of the actual yield possibilities of the mixed-oak stands which constitute the largest portion of the farm-woodland acreage of southern Wisconsin and southern Minnesota. This investigation showed that maximum net yields of 8700 board feet per acre at 80 years are obtainable on medium sites. Under the best possible conditions of soil and moisture (very good site) substantially the same net volume, 9150 board feet per acre, was recorded for fully-stocked forests only 60 years in age. Re-

[5] Gevorkiantz, S. R. and Scholz, H. F. 1948. Timber Yields and Possible Returns from the Mixed-Oak Farmwoods of Southwestern Wisconsin. Publication No. 521. State Conservation Commission of Wisconsin, Madison, Wisconsin.



Fertile bottomlands often are ruined by the combined run-off from cultivated ridges and intermediate, open, or partially-timbered drainages. One of the objectives of land-use planning is to eliminate such needless waste of soil. Houston County, Minnesota.

gional averages for southern Wisconsin and southern Minnesota, of course, are much lower than these maximum yields. However, there are enough undisturbed or lightly cut mixed-oak stands in the two states to provide physical proof that net yields of 5000 to 7500 board feet per acre at 80 years frequently do occur.

There are several ways in which a farmer can "cash-in" on the material which grows in his woodlot. First, he can sell stumpage, if there is no other way for him to get rid of his timber. Stumpage sales on entire blocks of timber are bad insofar as they deplete the growing stock and unless he marks the timber to be cut, the individual owner surrenders control over what is cut and how much is taken. Technical advise on these points can be obtained by consulting the nearest public forester.

Another alternative which is open to the woods owner is to convert his standing trees into logs and sell these f.o.b. the farm or mill. In this way he receives the stumpage price, plus a labor allowance for cutting, skidding and hauling, assuming, of course, he is equipped to do heavy-duty trucking. In certain parts of Wisconsin, log-making has become an established practice among farmers. One of the best illustrations of this trends is found in

Vernon County where, in 1946, about 75 cars of high-grade logs, 25,000 bowling pins, and a half million board feet of lumber were manufactured or shipped as rough products by one small urban center. The majority of the logs in this instance were cut by farmers from their own woodlots. In some localities, the profits from woods work have been increased substantially by pooling and grading the logs and marketing them cooperatively[6].

A third method of obtaining revenue from farm-grown timber is to convert the logs into lumber or dimension stock for home-use. Usually the only cash outlays needed are for hauling the logs to the mill and the sawing charge. If arrangements can be made for a portable mill to set up at the farmstead, at least a part of the hauling costs can be saved.

Even when all costs for stumpage, milling, and hauling are included, and the farmer's time spent on felling, bucking, skidding, etc., is credited at current labor rates, his home-grown lumber costs him only about half as much as substitute materials at retail prices. In this manner, the timber owner gets maximum financial return from his farm woods. The possible uses of forest products obtained from the various timber species of the north-central region depend on such physical properties as strength, durability, nail-holding characteristics, tendency to warp, etc. Such information is available in various publications, often in highly-condensed form[7].

The Forests of the Dairy-Farming Region of Southern Wisconsin and Southern Minnesota Still are Extensive and Valuable

If multiple-use forestry, in the sense that the term applies on the average farm, is to have any real meaning in southern Wisconsin and southern Minnesota, further deterioration of the remaining better woodlots must be prevented. In spite of past misuse and poor management, these forests still total 8½ million acres. They produce an estimated $20,000,000 worth of products annually and provide at least a part of the raw material for 1700 wood-using industries in the region. It is almost an economic corollary that the only way small-scale forestry enterprises can be made to pay, is by frequent harvests of highly-productive woods[8].

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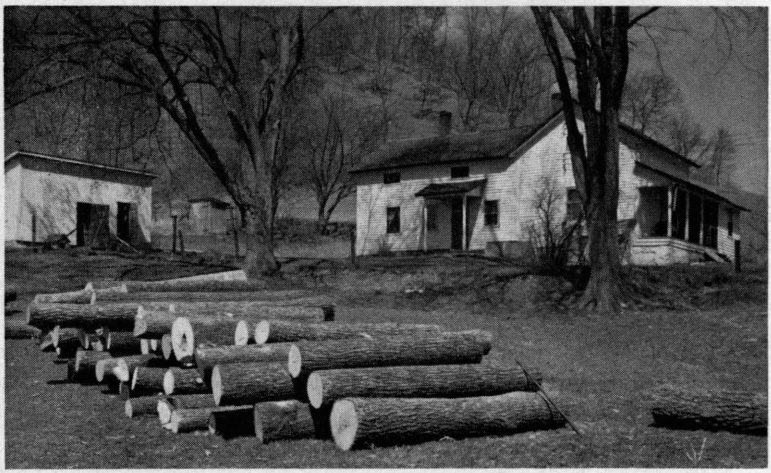
[6] Cooperative Management and Marketing for the Woodland Owner. 1943. Farmers Bulletin No. 1927. U. S. Department of Agriculture.

[7] Bull, Ira W.; Vogel, Frederick H.; and Panshin, A. J. 1942. Use of Home-Grown Timber on the Farm. Extension Folder F-30. Michigan State College, East Lansing, Michigan.

[8] Lucas, Broder F. 1950. Economic Hurdles in Farm Forestry. Farm Economics, No. 175. July 1950. 4537-4539.

Approximately 10,000 veneer and high-grade sawlogs are concentrated in this yard for shipment. This material was cut in the winter of 1947-1948, mostly by farmers from their own woodlots, in Vernon, Richland, and Juneau Counties, Wisconsin.



The farmer owning these excellent logs, principally basswood, appreciated their high value for home-sawn lumber. Shortly after this picture was taken, they were converted into 4/4 boards or dimension stock by a portable mill. Richland County, Wis.

The Timber Harvest Forest May Be the Key to Better Woodlot Management

Farmers or other owners of small timber tracts usually question the practicability of good forest practices on two grounds. First, they do not see how it is possible to handle a continuous

crop, which often require 50 to 100 years to reach merchantable size. Their second objection is that the *total* yearly or periodic return from stumpage, logs, rough lumber, and other forest products is relatively small as compared to the *total* income from the sale of cash crops, livestock, milk, etc. On this basis, they insist that forestry does not pay.

In 1944, there was initiated in Wisconsin a type of forest-management activity which has proven to be extremely effective in meeting the foregoing objectives. What this program does is to provide a number of publicly-owned woodlots, called Timber Harvest Forests[9], which serve as outdoor laboratories for farmers and other timber owners. Once a year, or in some cases once every two or three years, special field days are held on these tracts.

The foresters in charge of a Timber Harvest Forest field day program stress the necessity for limiting the annual or periodic harvest to a volume equal to, or less than, the growth of the entire stand since the the last cut. The original volume, as determined by an intensive cruise, is likened to the capital investment of a business concern, and the growth is compared to the interest or return for use of this money. Prior to holding the field day, the logs or bolts representing the allowable cut are concentrated at one or two landings. This provides a visual demonstration of just what the total annual or periodic growth for the entire woodlot means in terms of usable products. At the same time this fact is called to the farmer's attention, the forester also points out why certain trees were cut and others were left. Thus he is able, *in the woods,* to get across the twin ideas of the continuous, regulated harvest and the elementary principles of good forest management.

A special effort also is made at these field meetings to stress the "economics" of farm forestry. The main point of emphasis is that the returns for woods work, usually felling and skidding, in terms of wages per hour compare very favorably with any other farm activity. Records for the various Timber Harvest Forests in Wisconsin repeatedly have shown that log-making pays the operator from $1.25 to $2.00 per hour for the 200 or so hours he spends annually in his own woodlot. Studies in northern Michigan[10] and Vermont[11] substantiate these hourly rates.

Another objective of the Timber Harvest Forest demonstrations is to bring the farmer and other timber owners up to date on

[9] Trenk, F. B. 1946. Wisconsin's Timber-Harvest Forests. Wisconsin Conservation Bulletin, Volume XI, No. 2.

[10] Zillgitt, W. M. 1947. Second Growth Woodlands on Farms Can Return an Annual Income. Technical notes, No. 270. Lake States Forest Experiment Station, University Farm, St. Paul, Minnesota.

[11] Carter, R. M. 1950. Woodlot Economics on Vermont Dairy Farms. Bulletin 554, Vermont Agricultural Experiment Station, Burlington, Vermont.

new types of woods equipment and improved methods of logging, loading, and hauling. One- and two-man power chain saws, skidding arches and similar devices, trucks equipped with self-loading booms or winches, and on-the-spot sawing of lumber by portable mills, invariably seem to catch the eye and interest of the field-day crowds. Occasionally a log-sawing contest or some other competitive feature may be included on the program.

On the basis of a 6-year trial period, there seems to be little doubt that the Wisconsin Timber Harvest Forests have provided the incentive for new interest in farm forestry throughout the state. This conclusion appears to be justified by the size of the crowds, typically 200 to 300 persons, which attend the field-day demonstrations and by the increasing number of requests from farmers for technical assistance in managing their woodlands and marketing products from them. While admittedly it will take many years to restore the productivity of hundreds of small, badly-abused timber tracts in the region, the accomplishments of recent years indicate clearly that the majority of these forest-owners are aware of the multiple value of a well-kept woodland for conserving water and soil, improving wildlife conditions, and assuring a continuous supply of bolts, logs, posts, fuelwood, and other valuable products.

This situation is a challenge to the entire forestry profession. The question which foresters must answer is this: Will the program of education, demonstration, and professional assistance which has proven so effective in recent years, constantly be improved and broadened to keep pace with public interest, or will it gradually lose momentum and its popular appeal, after reaching only the most conservation-minded "fringe" of small woodland owners? Time alone will tell.

FACTS ABOUT THE AUTHOR

My pre-college residence was Lee County, Iowa. Attended Iowa University from 1921 to 1923; entered Iowa State College in 1924 and graduated in 1929. Member of Alpha Zeta and Gamma Sigma Delta. Obtained M.F. from Harvard University in 1931.

Employed on the Nantahala National Forest in 1926 and by the Appalachian Forest Experiment Station in 1927-'28. Transferred to the Lake State Forest Experiment Station in 1928 where I have been ever since, except for a 15-month absence on educational furlough.

Research activities have included projects in mensuration, forest soils, planting forest influences, flood control, and management. Am currently in charge of Farm Forestry Research for southern Wisconsin, with headquarters at the Northern Lake Forest Research Center, Rhinelander, Wisconsin.

Am author or co-author of various technical bulletins and articles. Was married in 1937 and have two sons and a daughter.